

THE HISTORY OF THE SMOKE NUISANCE AND OF SMOKE ABATEMENT IN PITTSBURGH

Local Archives Show Over a Century of Intermittent Agitation Over the Smoke Nuisance — Early Narratives of Travelers—Part Played by Engineers' Society of Western Pennsylvania—The Lesson Natural Gas Taught—A Forgotten Ordinance.

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Pittsburgh
THE story of the Smoke Nuisance in Pittsburgh is the old and oft-told story which runs through the history of American municipalities. It is the story of rapid growth in population and industrial activity, marked by wastefulness of natural resources, carelessness in regard to the future, indifference to many of the precious things of life, and a blind opposition toward anything which seems to threaten, in even a remote way that which is termed "Prosperity."

When the story is told for Pittsburgh it is told for most of the cities of the country, for Pittsburgh, with its sobriquet, "The Smoky City," has stood as the shining example of the Smoke Nuisance. Because of its wonderful industrial development and because of the black smoke which seemed to follow, Pittsburgh has done more than any other city on the globe to make smoke and prosperity synonymous in the minds of a great host of people who are seemingly indifferent to the truth of the whole problem.

The history of the Smoke Nuisance dates from the very beginning of the city. Tradition has it that coal was burned in Fort Duquesne by the French. As this coal was from the Pittsburgh vein, which is so rich in volatile matter, and as it was burned, no doubt, as a great part of it is burned to-day, it is safe to assume that there was black smoke about the Fort in even its earliest days. The Rev. Charles Betty, who was chaplain of the English forces which occupied the Fort in 1758, noted that coal was used in the garrison in 1766. In that year, what was known as "Coal Hill," now Mount Washington, took fire and it is said to have burned steadily for sixteen years.

A Town Problem 110 Years Ago.

That official cognizance was early taken of the Smoke Nuisance is indicated in the following communication of General Presley Neville, the burgess of Pittsburgh, to George Stevenson, the president of council. The letter is dated June 10, 1804. It reads in part:

The general dissatisfaction which prevails and the frequent complaints which

are exhibited, in consequence of the Coal Smoke from many buildings in the Borough, particularly from Smithies and Blacksmith Shops, compels me to address you on this occasion. I would be extremely sorry to be in any way the means of subjecting any of our fellow-citizens to unnecessary or useless expense, but in this instance not only the comfort, health and in some measure the consequence of the place, but the peace and harmony of the inhabitants depend upon the speedy measures being adopted to remedy the nuisance.

The burgess went on to suggest higher chimneys by which "the smoke could be voided into free air and carried beyond the limits of the borough."

This letter sounds very much like one that could be written some 109 years later. I dare say that this letter has served as a model for the communications of the successors of General Neville on this subject. Perhaps its apologetic reference to "expense" as against "comfort and health" accounts for the "speedy measures" which have been adopted to remedy the nuisance.

A Reference in 1807.

As even to-day, the most conspicuous feature about Pittsburgh in its early days was its smoke. In Cumming's Sketch of a Tour, written in 1807, there is this observation on Pittsburgh: "The great consumption of coal abounding in sulphur, and its smoke condensing into a vast quantity of lamp black, gives the outside of the houses a dirty and disagreeable appearance, even more than the most populous town of Great Britain where a proportional great quantity of coal is used."

It is a well known fact that Pittsburgh so resembled certain cities of England in its industries and appearance that local sections were called Birmingham and Manchester. Charles Dickens, commenting on this resemblance in his American Notes, said: "It (Pittsburgh) certainly has a great quantity of smoke hanging about it."

Zadock Cramer in the Navigator, 1808, wrote of Pittsburgh: "On entering the town one is rather offended with its dark and heavy appearance. This arises from the smoke of coal, which is used

as a common fuel, and of which about 170,000 bushels are consumed annually. It costs six cents a bushel at your door and is said to be the equal of any in the world."

"Tarnishes Every Object."

There is in existence a "Diary of a Journey" by a traveler who is unknown because the title page of the diary is missing. The date of it is probably 1813 or 1819. He wrote: "Pittsburgh was hidden from view until we descended within a half a mile of the Allegheny river. Dark, dense smoke was rising from many parts, and a hovering cloud of thin vapor, obscuring the prospect, rendered it singularly gloomy. Indeed, it reminded me of the smoking logs of a new field. The smoke often descends in whirls through the streets, it tarnishes every object to which it has access. The gloomy appearance thus imparted to the houses, especially to those of wood, whether painted or not, is such as instantly to fix the attention of a stranger."

In the spring of 1816, one David Thomas journeyed across the Alleghenies by stage coach, and three years afterwards told of his travels in a volume entitled "Travels in the Western Country." Of Pittsburgh's coal supply he wrote: "The vast advantages that accrue to this place from its coal will be appreciated when we consider that almost every manufacture owes its existence to this article of fuel." Of the smoke that came from the burning of this fuel he remarked:

The clouds of smoke are an all powerful detriment to beauty. * * * We cannot conceive that the expense of burning gas is very formidable, and until such a regulation be adopted, the application of all bright colors to the external parts of the buildings should be deferred. I am assured that clothes, sullied before they can dry, are often returned to the wash tub in unfavorable weather.

In 1818, Pittsburgh was visited by a quixotic old gentleman, Esrick Evans, who wrote: "Owing to the exclusive use of coal here, both by the manufacturers and by private families, the whole town presents a smoky appearance. Even the complexion of the people is affected by this cause." He was not the first to

note this point, for Major Forman, in 1789, spoke of the coal smoke, saying it was such as to "affect the skin of the inhabitants"; and Henry Bradshaw Fearon, a London surgeon who visited Pittsburgh in 1817 wrote: "The smoke is extreme, giving to the town and its inhabitants a very sombre aspect."

Early Industries and Their Fuels.

The smoke of Pittsburgh has always been connected in a very intimate way with its iron and steel industry. The first furnaces of the iron industries were built in 1792 at what is now Shadyside. The fire from these furnaces lighted up the camps of those who in 1794 were participants in the Whisky Rebellion. In 1805 an iron foundry was built on the present site of the Park building. In melting iron ore, charcoal was used until 1813 when one John Beal, who had lately come from England, offered through the newspapers, his services in showing the manufacturers the advantages of coke. Of course, the making of coke for this purpose only increased the smoke in the city.

During the early years of the city the industries which depended upon cheap fuel for their existence grew rapidly in number and size. In 1817 the city council took a census of the manufacturing concerns and found that there were 248. James Stuart, a Scotch traveler who visited Pittsburgh in 1832 wrote in "Three Years in America":

Pittsburgh is well known as the great manufacturing city of Western America, and would be a very delightful place of residence, but for the clouds of coal smoke which cover it and give a gloomy cast to the beautiful hills which surround it, and to all the neighboring country.

If we follow the early census reports we will find that Pittsburgh's growth was rapid in both population and industry. In 1820 the population was 7,248. It began to increase at the rate of 70 per cent a decade. In 1840 it was said that the prophecy, "Pittsburgh is a manufacturing town which will one day become the Birmingham of America," was long fulfilled. Of course, in those days it would have been treason to suggest that the manufacturers should curtail the emission of black smoke. The connection between smoke and prosperity was becoming fixed.

James Parton's Description.

The description par excellence of Pittsburgh and its smoke was given to the world in an article entitled "Pittsburgh," by James Parton, which appeared in the Atlantic Monthly for January, 1868. It appears that James Parton, in order to secure his material for this article visited Pittsburgh on December 6, 1866. This happened to be one of Pittsburgh's dark days, and he tells

how night came to make the darkness natural and "the streets being lighted, Pittsburgh was more cheerful than it had been all day." I should judge that this article stamped Pittsburgh for all times as the Smoky City, as smoke seems to rise from every page; witness these sentences: "The town lies low, as at the bottom of an excavation just visible through the mingled smoke and mist and every object in it is black. Smoke, smoke, smoke, everywhere smoke. * * * Everything is bought and arranged with reference to the ease with which its surface can be purified from the ever falling soot."

Anti-Smoke Gospel from Birmingham.

Dr. William J. Holland, the director of the Carnegie Museum, tells the following story of Pittsburgh about 1878: "About 35 years ago the Rev. Leonard Woolsey Bacon, who was temporarily filling the pulpit of the Third Presbyterian Church in Pittsburgh, having come to this city from New Haven, appeared one Monday morning at the door of my den, looking haggard, tired and dirty. He informed me that he had passed a doleful night at the Monongahela house, and on arising in the morning had spent a quarter of an hour in trying to cough up and expectorate a coal mine which had lodged in his air passages. He said to me, with a look of grim determination on his face: 'I am going to leave the town. I have brought you three pamphlets which I picked up in Birmingham, England, some time ago telling how to cure the Smoke Nuisance. I give them to you as a young man who seems to be determined to live in Pittsburgh, and I wish to say that there is no better gospel which you can preach in this dirty place than the gospel of pure air and abatement of the smoke nuisance.'"

Part Played by Natural Gas.

Pittsburgh might never have had any smoke abatement agitation if it had not come to pass that the city was practically freed from smoke by the discovery of natural gas and its utilization as a fuel. In a report made to the Engineers' Society of Western Pennsylvania in May, 1884, there was this statement: "Smoke and smoked ceilings of Pittsburgh may become things of the past, yet if sold at the price now charged, i. e., 50c per thousand feet, it (natural gas) is much more costly than coal." At the time of the report, natural gas was being used as a fuel in the Union Iron Mills and the Black Diamond Steel Works. It was only a short time until natural gas became cheaper than coal and came for the time being to supplant it as a fuel.

Metcalfe's Early Efforts.

However, before 1885 Pittsburgh be-

came alive to at least the question of coal economy. In 1881, William Metcalfe, an eminent engineer and mill owner, read a paper before the Engineers' Society on "Some Waste of Heat." In the introduction to his paper he declared that he "proposed to show by figures obtained from actual working data, how much money is annually thrown away in Allegheny county by throwing coal into our furnaces in the shape of coal, to be sent, wasted, out at the tops of the stacks in the shape of dirty, useless smoke, and red and far more expensive flames." He estimated the cost to be \$1,063,000.

In 1884 it is estimated that Pittsburgh was using annually 3,000,000 tons of bituminous coal. With the introduction of natural gas this fell off to less than 1,000,000 tons. The regime of natural gas was brief. About 1890 the coal consumption again began to move upward and by 1895 King Coal had resumed his throne.

Lesson of a Clean City.

But Pittsburgh knew what a clean city was like. It had actually been experienced. It was only natural then that the people protested when the smoke began to increase. The question was taken up the Ladies' Health Association of Allegheny County. The prime mover in this organization was the late Miss Kate C. McKnight, who was very active in civic work. This association merged with the Civic Club of Allegheny County when it was organized, in 1895. A committee from the health association was present at the meeting of the Engineers' society in February of 1892 when William Metcalfe, referred to above, read a paper which was a partial defense of smoke. In the discussion that followed this paper one of the speakers said:

"We are going back to smoke. We had four or five years of wonderful cleanliness in Pittsburgh, and we have all had a taste of knowing what it is to be clean."

At the March meeting of the Engineers' society, the Ladies' Health Association presented its side of the story. The result was that the engineers appointed a committee on Smoke Prevention, which reported in the latter part of the same year.

Action by Engineers' Society.

In this report the committee recommended: (1) That the Women's Health Protective Association or some similar organization, continue its efforts toward smoke prevention by educating the community in its principles and advocating the use of smokeless fuel in dwellings and the best stokers or other devices in manufactories and steam plants. (2) That the city council should pass an ordinance for the abatement of the Smoke Nui-

sance, insisting on the absence of dense smoke from stationary, steamboat and locomotive boilers except when fires are started, but recognizing the necessity of puddling and other furnaces which require a small excess of carbon for proper working. (3) That one of the duties of the building inspector or of persons appointed for the purpose, should be to see that the newly erected buildings have properly designed flues and ample room for furnaces with particular reference to economical combustion and the non-emission of smoke.

First City Legislation.

There is little doubt but that as a result of the agitation on the part of the Ladies' Health Association, and because the city was forced to give up the use of gas in the pumping stations in 1891 on account of the increased price, the city councils passed the first general ordinance. The word "general" is used because in the digest of the ordinances of Pittsburgh, 1804-1908, there is recorded the following ordinance:

Section 2344—No bituminous coal or wood shall be used in the engine or any locomotive employed in conducting trains upon any railroad.

The code in which this ordinance appears was formulated in 1869, so this ordinance was passed, no doubt, shortly before that date. It is said that it has never been expressly repealed or amended.

The ordinance of March, 1892, provided that after September 1, 1892, it should be unlawful for any chimney or smoke stack used in connection with a stationary boiler to allow, suffer or permit smoke from bituminous coal to be emitted or escape therefrom, within a certain district. This district was bounded by Miltenberger, Dinwiddie, Deviliers and Thirty-third streets on the west and the city line on the east. Its northern and southern boundaries were irregular, being arranged according to the newspaper "so as not to affect a number of iron works, steel works, oil refineries and other industries for which successful smoke consuming devices have not yet been provided." It will be observed that this ordinance excepted the business section of the city, bounded by Grant street, the Tenth street bridge and the two rivers. The ordinance was chiefly notable for its exceptions. The power of enforcing this ordinance was placed in the hands of the Department of Public Works.

Bigelow's Early Efforts.

Edward M. Bigelow, who was then director of the Department of Public Works, assigned the duty of enforcing the ordinance to the superintendent of the Bureau of Water Supply. The city

decided very properly to clean up its own stacks, which were sending forth black smoke, and at the same time to give a demonstration of what might be done in the way of burning bituminous coal for steam making purposes without emitting black smoke.

The story of the attempt to make the Brilliant pumping station smokeless is a most instructive one. No doubt it explains why plants other than municipal ones are still making black smoke. At first the work at the pumping station was pushed with vigor. The work of installing stokers was started in 1893. In 1894 the superintendent said in his report: "None of the smokeless devices are smokeless except under favorable conditions." Mr. Bigelow was more optimistic, for in his report for that year he said: "I may say that we have solved the problem of smoke prevention at the pumping stations." In 1908 the superintendent reported: "We have continued our efforts to prevent an unnecessary amount of smoke at this station."

After Twenty Years.

As we write this we have before us the 1913 message of the mayor to council in which he says: "Your attention is called again to the fact that one of the worst offenders against the smoke ordinance is the city of Pittsburgh at the Northside light plant and the Brilliant pumping station."

In May of 1895 a second smoke ordinance was passed. This ordinance provided in Section I, that the emission of more than 20 per cent black or dark gray smoke from any stack should be considered a public nuisance. Section III provided a fine for the emission of smoke for over three minutes. The decision of the Superior Court in the case of Pittsburgh vs. W. H. Keech Company virtually made this ordinance inoperative.

Enter Chamber of Commerce.

In January, 1899, President Bindley, of the Chamber of Commerce, appointed a Committee on Smoke Abatement. This appointment was no doubt, bought about in a measure by the speech of Andrew Carnegie at the annual banquet of the Chamber in November of 1898. In speaking of the Smoke Nuisance he said: "We all know that many of our citizens are tempted just at that period of their lives when they would be of most use to our city in furthering the things of a higher order to leave Pittsburgh to reside under skies less clouded than ours. The man who abolishes the Smoke Nuisance in Pittsburgh is foremost of us all; to him be assigned first place, and to him let our deepest gratitude go forth."

After the appointment of its committee, the Chamber of Commerce request-

ed that a committee be appointed from the Civic Club of Allegheny County and from the Engineers' society to co-operate with it. While the Civic Club promptly accepted the invitation, the Engineers' society, for reasons of its own, withheld its co-operation. This combined committee reported in December of 1899. Among other things in this report, it said:

If your committee believed that it was not practicable to, at least, greatly diminish the Smoke Nuisance throughout the commercial and residence districts of the city, it would frankly say so and ask for summary dismissal. . . . The efforts of our city government toward the abatement of the Smoke Nuisance have so far not met with notable success; a fact chiefly due to the absence of laws for the enforcement of the city ordinance for this purpose.

The committee suggested asking the legislature for power to compel offenders to comply with the ordinance.

Creating a Smoke Inspector.

As a result of the work of this committee an ordinance was passed in December, 1906. This ordinance held the emission of dense black or dense gray smoke for more than eight minutes in any one hour to be a nuisance and prescribed the penalties for the violation thereof. However, it made no provision for the enforcement of this ordinance by any particular bureau. In January of 1907, council passed an ordinance introduced by this committee creating the office of Smoke Inspector.

At the request of Mayor Guthrie and in recognition of the efforts of this committee—this being prior to the enactment by the Legislature of the civil service law—a civil service examination was held under the supervision of the committee to secure a man fitted to take the position of Smoke Inspector. William H. Rea was selected and active work was begun under the new ordinance in June, 1907. The administration of Mr. Rea was a very efficient one, resulting in a material reduction of the smoke nuisance in the city.

Thrown Out of Court.

In 1909 Mr. Rea resigned and J. M. Searle was appointed by Mayor Magee to succeed him. On March 3, 1911, the ordinance was declared void in the case of the Commonwealth of Pennsylvania versus Standard Ice Company. The grounds of this decision were, first, that the Legislature of Pennsylvania had likely not given the city any sufficient authority to pass ordinances upon the subject of the emission of smoke and without such authority the city could not act—this, however, was not definitely ruled—and, second, that the ordinances were unreasonable. On June 6, 1911, the Legislature passed an act authoriz-

ing cities of the second class to regulate the emission of smoke and in September, 1911, a new ordinance—the present one with one modification, that of the exception of mill heating furnaces and puddling furnaces—was passed. On September 22, 1911, Mr. Searle resumed his work as chief smoke inspector.

At the present time Pittsburgh is most fortunate in the strength and number of the forces that are at work fighting the smoke nuisance, so that at last the solution of what was set down by Dr. Holdsworth in the Economic Survey, as "the greatest hindrance to Pittsburgh's economic progress," is within striking distance.

Present Agencies.

The Industrial Research Department of the University of Pittsburgh is conducting an investigation into every phase of the Smoke problem; Pittsburgh

is the home of the United States Bureau of Mines, which is making tests of the value of the different fuels and is carrying on investigations to ascertain the conditions of furnace construction and management that are necessary to insure the smokeless combustion of the different coals; the city smoke inspector in his report for 1912 promised to have cleared the city of 90 per cent of the smoke arising from industrial plants by the end of the year 1913 and last, but not least, the civic and commercial organizations have organized a Smoke Abatement League in order that they may present a solid front on the subject of Smoke Abatement.

It is reasonable to suppose that some time in the very near future Pittsburgh's smoke nuisance will only be a topic for such a paper as this. It will be a matter of history.

BIBLIOGRAPHY.

History of Pittsburgh—Sarah H. Killikelly.

Old Pittsburgh Days—T. J. Chapman.

Pittsburgh and Her People—Edited by J. N. Boucher.

Pittsburgh as Seen by Early Travelers—Monthly Bulletins of Carnegie Library, April 1902—June 1906.

History of Pittsburgh—Edited by Erasmus Wilson.

Proceedings of the Engineers' Society of Western Pennsylvania.

Reports of the Pittsburgh Department of Public Works.

Annual Reports of the Pittsburgh Chamber of Commerce.

Fifteen Years of Civic History. A Report of the work of the Civic Club of Allegheny county.

